

DOCKET: CU-4424

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

APPLICANT: Rolf BERGE

TITLE: COMPOSITION COMPRISING PLANT AND/OR FISH OILS AND COMPOUNDS COMPRISING NON-OXIDIZABLE FATTY ACID ENTITIES

## AMENDED CLAIMS

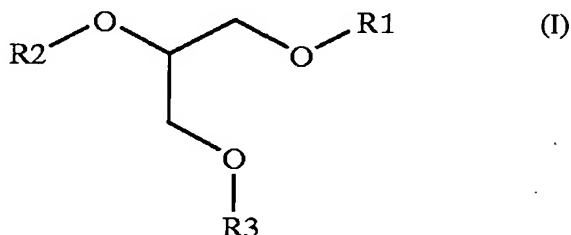
1 – 47 (cancelled)

48. (new) A method of prevention and/or treatment of insulin resistance, obesity, diabetes, fatty liver, hypercholesterolemia, dyslipidemia, atherosclerosis, coronary heart disease, thrombosis, stenosis, secondary stenosis, myocardial infarction, stroke, elevated blood pressure, endothelial dysfunction, procoagulant state, polycystic ovary syndrome, the metabolic syndrome, cancer, an inflammatory disorder, and a proliferate skin disorder comprising the administration of a pharmaceutical or nutritional composition comprising a combination of:

- 1) plant oil and/or fish oil; and
- 2) one or more compounds comprising non  $\beta$ -oxidizable fatty acid entities represented by

(a) the general formula  $R''\text{-COO}-(\text{CH}_2)_{2n+1}\text{-X-R}'$ , wherein X is a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group or a  $\text{SO}_2$  group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group and a  $\text{SO}_2$  group; and R'' is a hydrogen atom or an alkyl group containing from 1 to 4 carbon atoms; and/or

(b) the general formula (I),

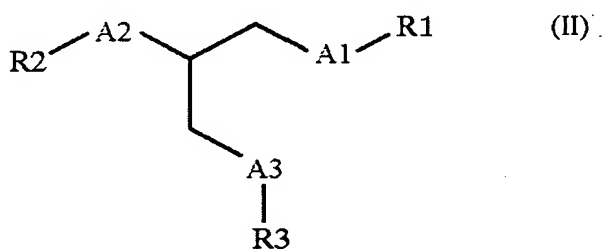


wherein R1, R2, and R3 represent

- i) a hydrogen atom; or
- ii) a group having the formula CO-R in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or
- iii) a group having the formula CO-(CH<sub>2</sub>)<sub>2n+1</sub>-X-R', wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH<sub>2</sub> group, a SO group or a SO<sub>2</sub> group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH<sub>2</sub> group, a SO group and a SO<sub>2</sub> group;
- iv) an entity selected from the group comprising -P0<sub>3</sub>CH<sub>2</sub>CHNH<sub>3</sub>COOH (serine), P0<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>3</sub> (ethanolamine), P0<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>N(CH<sub>3</sub>)<sub>3</sub> (choline), P0<sub>3</sub>CH<sub>2</sub>CHOHCH<sub>2</sub>OH (glycerol) and P0<sub>3</sub>(CHOH)<sub>6</sub> (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

(c) the general formula (II),



wherein A1, A2 and A3 are chosen independently and represent an oxygen atom, a sulphur atom or an N-R4 group in which R4 is a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 5 carbon atoms;

wherein R1, R2, and R3 represent

- i) a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 23 carbon atoms; or
- ii) a group having the formula CO-R in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or

- iii) a group having the formula  $\text{CO}-(\text{CH}_2)_{2n+1}-\text{X}-\text{R}'$ , wherein X is a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group or a  $\text{SO}_2$  group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group and a  $\text{SO}_2$  group;
- iv) an entity selected from the group comprising  $-\text{P}(\text{O})_3\text{CH}_2\text{CHNH}_3\text{COOH}$  (serine),  $\text{P}(\text{O})_3\text{CH}_2\text{CH}_2\text{NH}_3$  (ethanolamine),  $\text{P}(\text{O})_3\text{CH}_2\text{CH}_2\text{N}(\text{CH}_3)_3$  (choline),  $\text{P}(\text{O})_3\text{CH}_2\text{CHOHCH}_2\text{OH}$  (glycerol) and  $\text{P}(\text{O})_3(\text{CHOH})_6$  (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or  
a salt, prodrug or complex of the compounds according to (a)-(c).

49. (new) Method according to claim 48, where said prevention and/or treatment of cancer includes inhibition of: primary and secondary neoplasms, the growth of tumours, invasion of a primary tumour into connective tissue and formation of secondary tumours.

50. (new) Method according to claim 48 where the inflammatory disorder is selected from the group comprising immune mediated disorders such as rheumatoid arthritis, systemic vasculitis, systemic lupus erythematosus, systemic sclerosis, dermatomyositis, polymyositis, various autoimmune endocrine disorders, various immune mediated neurological disorders, various cardiovascular disorders, inflammatory bowel diseases and Chron's disease, non specific colitis, pancreatitis, nephritis, cholestasis/fibrosis of the liver, and acute and chronic allograft rejection after organ transplantation, and diseases that have an inflammatory component.

51. (new) Method according to claim 48, where said proliferate skin disorder is selected from the group comprising psoriasis, atopic dermatitis, non-specific dermatitis, primary irritant contact-dermatitis, allergic contact-dermatitis, lamellar ichthyosis, epidermolytic hyperkeratoses, pre-malign sun-induced keratoses, and seborrhoea.

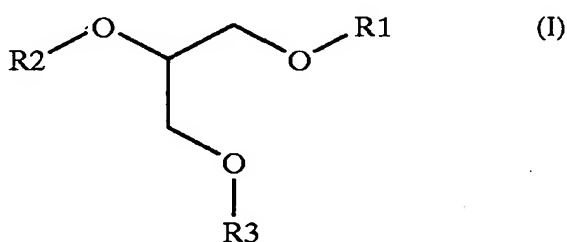
52. (new) A method of improving the total body lipid composition of an animal comprising the administration or feeding of an animal feed comprising common feed components and a combination of:

- 1) plant oil and/or fish oil; and

2) one or more compounds comprising non  $\beta$ -oxidizable fatty acid entities represented by

(a) the general formula  $R''\text{-COO}-(\text{CH}_2)_{2n+1}\text{-X-R}'$ , wherein X is a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group or a  $\text{SO}_2$  group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group and a  $\text{SO}_2$  group; and R'' is a hydrogen atom or an alkyl group containing from 1 to 4 carbon atoms; and/or

(b) the general formula (I),

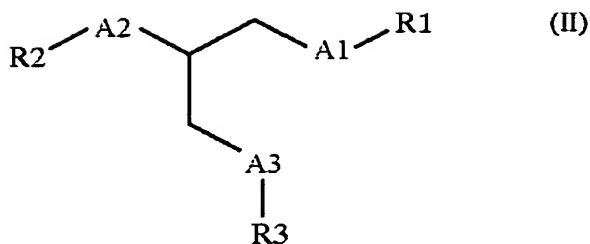


wherein R1, R2, and R3 represent

- i) a hydrogen atom; or
- ii) a group having the formula  $\text{CO-R}$  in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or
- iii) a group having the formula  $\text{CO}-(\text{CH}_2)_{2n+1}\text{-X-R}'$ , wherein X is a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group or a  $\text{SO}_2$  group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group and a  $\text{SO}_2$  group;
- iv) an entity selected from the group comprising  $\text{-P}_3\text{CH}_2\text{CHNH}_3\text{COOH}$  (serine),  $\text{P}_3\text{CH}_2\text{CH}_2\text{NH}_3$  (ethanolamine),  $\text{P}_3\text{CH}_2\text{CH}_2\text{N}(\text{CH}_3)_3$  (choline),  $\text{P}_3\text{CH}_2\text{CHOHCH}_2\text{OH}$  (glycerol) and  $\text{P}_3(\text{CHOH})_6$  (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

(c) the general formula (II),



wherein A1, A2 and A3 are chosen independently and represent an oxygen atom, a sulphur atom or an N-R4 group in which R4 is a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 5 carbon atoms;

wherein R1, R2, and R3 represent

- i) a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 23 carbon atoms; or
- ii) a group having the formula CO-R in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or
- iii) a group having the formula CO-(CH<sub>2</sub>)<sub>2n+1</sub>-X-R', wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH<sub>2</sub> group, a SO group or a SO<sub>2</sub> group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH<sub>2</sub> group, a SO group and a SO<sub>2</sub> group;
- iv) an entity selected from the group comprising -P0<sub>3</sub>CH<sub>2</sub>CHNH<sub>3</sub>COOH (serine), P0<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>3</sub> (ethanolamine), P0<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>N(CH<sub>3</sub>)<sub>3</sub> (choline), P0<sub>3</sub>CH<sub>2</sub>CHOHCH<sub>2</sub>OH (glycerol) and P0<sub>3</sub>(CHOH)<sub>6</sub> (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

a salt, prodrug or complex of the compounds according to (a)-(c).

53. (new) Method according to claim 52 where the improvement of the total lipid composition comprises decreasing the total body lipid levels.

54. (new) Method according to claim 52 where the improvement of the total lipid composition comprises decreasing the total body saturated fatty acid levels.

55. (new) Method according to claim 52 where the improvement of the total lipid composition comprises increasing the total body n-3 fatty acid levels.
56. (new) Method according to claim 48 where the plant or fish oil comprise polyunsaturated fatty acids.
57. (new) Method according to claim 52 where the plant or fish oil comprise polyunsaturated fatty acids.
58. (new) Method according to claim 56, where the plant oil is selected from the group comprising sunflower oil, soy oil and olive oil.
59. (new) Method according to claim 57, where the plant oil is selected from the group comprising sunflower oil, soy oil and olive oil.
60. (new) Method according to claim 52, wherein said animal is a human.
61. (new) Method according to claim 52, wherein said animal is an agricultural animal, such as gallinaceous birds, bovine, ovine, caprine or porcine mammals.
62. (new) Method according to claim 52, wherein said animal is a domestic or pet animal, such as dog or cat.
63. (new) Method according to claim 52, wherein said animal is a fish or shellfish, such as salmon, cod, Tilapia, clams, oysters, lobster or crabs.
64. (new) Method according to claim 48, where the compounds comprising non  $\beta$ -oxidizable fatty acid entities comprise a daily dosage of about 1 – 200 mg/kg, preferably 5 - 50 mg/kg for human consumption, and about 1 – 2000 mg/kg, preferably 5 - 500 mg/kg, for animal consumption.
65. (new) Method according to claim 52, where the compounds comprising non  $\beta$ -oxidizable fatty acid entities comprise a daily dosage of about 1 – 200 mg/kg, preferably 5 - 50 mg/kg for human consumption, and about 1 – 2000 mg/kg, preferably 5 - 500 mg/kg, for animal consumption.

66. (new) Method according to claim 48 where the oil comprise a daily dosage of about 1 – 300 mg/kg, preferably 10 - 150 mg/kg for human consumption, and from 1 mg/kg up to the total daily fat consumption for animal consumption.
67. (new) Method according to claim 52 where the oil comprise a daily dosage of about 1 – 300 mg/kg, preferably 10 - 150 mg/kg for human consumption, and from 1 mg/kg up to the total daily fat consumption for animal consumption.
68. (new) Method according to claim 52, where the animal feed may be a nutritional composition, veterinary composition, and/or a functional food product.
69. (new) Method according to claim 48, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity are non  $\beta$ -oxidizable fatty acids.
70. (new) Method according to claim 52, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity are non  $\beta$ -oxidizable fatty acids.
71. (new) Method according to claim 48, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity are tetradecylthioacetic acid (TTA), tetradecylselenoacetic acid and/or 3-Thia-15-heptadecyne.
72. (new) Method according to claim 52, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity are tetradecylthioacetic acid (TTA), tetradecylselenoacetic acid and/or 3-Thia-15-heptadecyne.
73. (new) Method according to claim 48, where X is a sulphur atom or a selenium atom.
74. (new) Method according to claim 52, where X is a sulphur atom or a selenium atom.
75. (new) Method according to claim 48, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity is a phospholipid, wherein said phospholipid is selected from the group comprising phosphatidyl serine, phosphatidyl choline, phosphatidyl ethanolamine, phosphatidyl inositol, phosphatidyl glycerol, and/or diphosphatidyl glycerol.
76. (new) Method according to claim 52, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity is a phospholipid, wherein said phospholipid is selected

from the group comprising phosphatidyl serine, phosphatidyl choline, phosphatidyl ethanolamine, phosphatidyl inositol, phosphatidyl glycerol, and/or diphosphatidyl glycerol.

77. (new) Method according to claim 48, where the compound comprising a non  $\beta$ -oxidizable fatty acid entity is the phosphatidyl choline derivative 1,2-ditetradecylthioacetoyl-*sn*-glycero-3-phosphocholine.

78. (new) Method according to claim 52, where the compound comprising a non  $\beta$ -oxidizable fatty acid entity is the phosphatidyl choline derivative 1,2-ditetradecylthioacetoyl-*sn*-glycero-3-phosphocholine.

79. (new) Method according to claim 48, where the compound comprising a non  $\beta$ -oxidizable fatty acid entity is the phosphatidyl ethanolamine derivative 1,2-ditetradecylthioacetoyl-*sn*-glycero-3-phosphoethanolamine.

80. (new) Method according to claim 52, where the compound comprising a non  $\beta$ -oxidizable fatty acid entity is the phosphatidyl ethanolamine derivative 1,2-ditetradecylthioacetoyl-*sn*-glycero-3-phosphoethanolamine.

81. (new) Method according to claim 48, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity are mono-, di- or tri-acylglycerides.

82. (new) Method according to claim 52, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity are mono-, di- or tri-acylglycerides.

83. (new) Method according to claim 48, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity are tri-acylglycerides comprising tetradecylthioacetic acid (TTA).

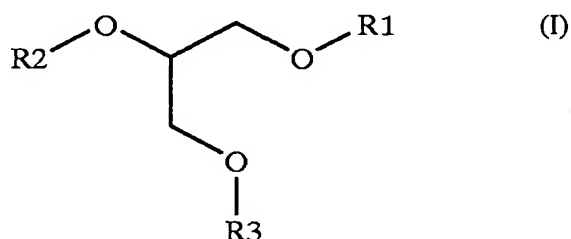
84. (new) Method according to claim 52, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity are tri-acylglycerides comprising tetradecylthioacetic acid (TTA).

85. (new) A composition, comprising a combination of:

- 1) plant oil and/or fish oil; and
- 2) one or more compounds comprising non  $\beta$ -oxidizable fatty acid entities represented by



- (a) the general formula  $R''\text{-COO}-(\text{CH}_2)_{2n+1}\text{-X-R}'$ , wherein X is a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group or a  $\text{SO}_2$  group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group and a  $\text{SO}_2$  group; and R'' is a hydrogen atom or an alkyl group containing from 1 to 4 carbon atoms; and/or
- (b) the general formula (I),

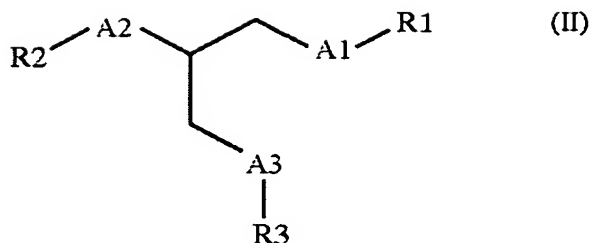


wherein R1, R2, and R3 represent

- i) a hydrogen atom; or
- ii) a group having the formula  $\text{CO-R}$  in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or
- iii) a group having the formula  $\text{CO}-(\text{CH}_2)_{2n+1}\text{-X-R}'$ , wherein X is a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group or a  $\text{SO}_2$  group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group and a  $\text{SO}_2$  group;
- iv) an entity selected from the group comprising  $\text{-P}_0\text{CH}_2\text{CHNH}_3\text{COOH}$  (serine),  $\text{P}_0\text{CH}_2\text{CH}_2\text{NH}_3$  (ethanolamine),  $\text{P}_0\text{CH}_2\text{CH}_2\text{N}(\text{CH}_3)_3$  (choline),  $\text{P}_0\text{CH}_2\text{CHOHCH}_2\text{OH}$  (glycerol) and  $\text{P}_0(\text{CHOH})_6$  (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

- (c) the general formula (II),



wherein A1, A2 and A3 are chosen independently and represent an oxygen atom, a sulphur atom or an N-R4 group in which R4 is a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 5 carbon atoms;

wherein R1, R2, and R3 represent

- i) a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 23 carbon atoms; or
- ii) a group having the formula CO-R in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or
- iii) a group having the formula CO-(CH<sub>2</sub>)<sub>2n+1</sub>-X-R', wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH<sub>2</sub> group, a SO group or a SO<sub>2</sub> group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH<sub>2</sub> group, a SO group and a SO<sub>2</sub> group;
- iv) an entity selected from the group comprising -P(O)<sub>3</sub>CH<sub>2</sub>CHNH<sub>3</sub>COOH (serine), P(O)<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>3</sub> (ethanolamine), P(O)<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>N(CH<sub>3</sub>)<sub>3</sub> (choline), P(O)<sub>3</sub>CH<sub>2</sub>CHOHCH<sub>2</sub>OH (glycerol) and P(O)<sub>3</sub>(CHOH)<sub>6</sub> (inositol);

wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

a salt, prodrug or complex of the compounds according to (a)-(c)

86. (new) Composition according to claim 85, wherein said plant or fish oil comprise polyunsaturated fatty acids.

87. (new) Composition according to claim 85, wherein said plant oil is selected from the group comprising sunflower oil, soy oil and olive oil.

88. (new) Composition according to claim 85, wherein the composition is an animal feed further comprising common feed components.
89. (new) Composition according to claim 88, wherein the animal feed is a fish feed.
90. (new) Composition according to claim 89, where the fish feed is salmon feed.
91. (new) Composition according to claim 85, where the common feed components comprise fishmeal and/or fish oil.
92. (new) Composition according to claim 85, further comprising fermented soy protein material.
93. (new) Composition according to claim 85, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity are non  $\beta$ -oxidizable fatty acids.
94. (new) Composition according to claim 93, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity are tetradecylthioacetic acid (TTA), tetradecylselenoacetic acid and/or 3-Thia-15-heptadecyne.
95. (new) Composition according to claim 85, where X is a sulphur atom or a selenium atom.
96. (new) Composition according to claim 85, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity is a phospholipid, wherein said phospholipid is selected from the group comprising phosphatidyl serine, phosphatidyl choline, phosphatidyl ethanolamine, phosphatidyl inositol, phosphatidyl glycerol, and/or diphosphatidyl glycerol.
97. (new) Composition according to claim 85, where the compound comprising a non  $\beta$ -oxidizable fatty acid entity is the phosphatidyl choline derivative 1,2-ditetradecylthioacetoyl-*sn*-glycero-3-phosphocholine.
98. (new) Composition according to claim 85, where the compound comprising a non  $\beta$ -oxidizable fatty acid entity is the phosphatidyl ethanolamine derivative 1,2-ditetradecylthioacetoyl-*sn*-glycero-3-phosphoethanolamine.

99. (new) Composition according to claim 85, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity are mono-, di- or tri-acylglycerides.

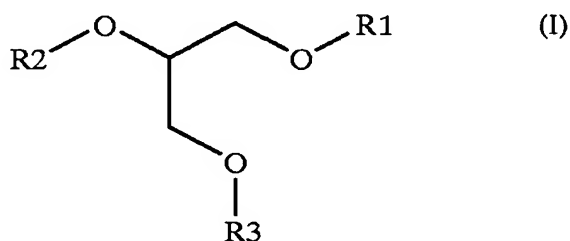
100. (new) Composition according to claim 99, where the compound(s) comprising a non  $\beta$ -oxidizable fatty acid entity are tri-acylglycerides comprising tetradecylthioacetic acid (TTA).

101. (new) Method for producing an animal based product with improved fatty acid composition, comprising of feeding the animal from which the product is to be produced with an animal feed comprising common feed components and a combination of:

- 1) plant oil and/or fish oil; and
- 2) one or more compounds comprising non  $\beta$ -oxidizable fatty acid entities represented by

(a) the general formula  $R''\text{-COO}-(\text{CH}_2)_{2n+1}\text{-X-R}'$ , wherein X is a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group or a  $\text{SO}_2$  group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group and a  $\text{SO}_2$  group; and R'' is a hydrogen atom or an alkyl group containing from 1 to 4 carbon atoms; and/or

(b) the general formula (I),



wherein R1, R2, and R3 represent

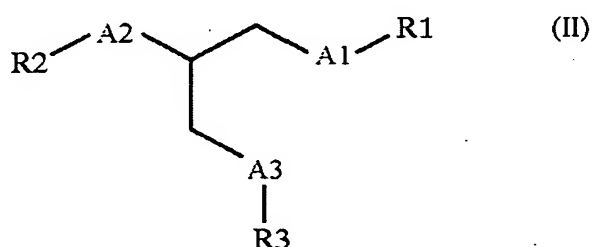
- i) a hydrogen atom; or
- ii) a group having the formula  $\text{CO-R}$  in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or
- iii) a group having the formula  $\text{CO}-(\text{CH}_2)_{2n+1}\text{-X-R}'$ , wherein X is a sulphur atom, a selenium atom, an oxygen atom, a  $\text{CH}_2$  group, a SO group or a  $\text{SO}_2$  group; n

is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH<sub>2</sub> group, a SO group and a SO<sub>2</sub> group;

iv) an entity selected from the group comprising -P(O)<sub>3</sub>CH<sub>2</sub>CHNH<sub>3</sub>COOH (serine), P(O)<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>NH<sub>3</sub> (ethanolamine), P(O)<sub>3</sub>CH<sub>2</sub>CH<sub>2</sub>N(CH<sub>3</sub>)<sub>3</sub> (choline), P(O)<sub>3</sub>CH<sub>2</sub>CHOHCH<sub>2</sub>OH (glycerol) and P(O)<sub>3</sub>(CHOH)<sub>6</sub> (inositol);

wherein R<sub>1</sub>, R<sub>2</sub>, and R<sub>3</sub> are chosen independently from i), ii), iii), or iv), but at least one of R<sub>1</sub>, R<sub>2</sub>, or R<sub>3</sub> is defined by iii); and/or

(c) the general formula (II),



wherein A<sub>1</sub>, A<sub>2</sub> and A<sub>3</sub> are chosen independently and represent an oxygen atom, a sulphur atom or an N-R<sub>4</sub> group in which R<sub>4</sub> is a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 5 carbon atoms;

wherein R<sub>1</sub>, R<sub>2</sub>, and R<sub>3</sub> represent

- i) a hydrogen atom or a linear or branched alkyl group, saturated or unsaturated, optionally substituted, containing from 1 to 23 carbon atoms; or
- ii) a group having the formula CO-R in which R is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, and the main chain of said R contains from 1 to 25 carbon atoms; or
- iii) a group having the formula CO-(CH<sub>2</sub>)<sub>2n+1</sub>-X-R', wherein X is a sulphur atom, a selenium atom, an oxygen atom, a CH<sub>2</sub> group, a SO group or a SO<sub>2</sub> group; n is an integer of 0 to 11; and R' is a linear or branched alkyl group, saturated or unsaturated, optionally substituted, wherein the main chain of said R' contains from 13 to 23 carbon atoms and optionally one or more heterogroups selected from the group comprising an oxygen atom, a sulphur atom, a selenium atom, an oxygen atom, a CH<sub>2</sub> group, a SO group and a SO<sub>2</sub> group;

iv) an entity selected from the group comprising  $-P(O)_3CH_2CHNH_3COOH$  (serine),  $P(O)_3CH_2CH_2NH_3$  (ethanolamine),  $P(O)_3CH_2CH_2N(CH_3)_3$  (choline),  $P(O)_3CH_2CHOHCH_2OH$  (glycerol) and  $P(O)_3(CHOH)_6$  (inositol); wherein R1, R2, and R3 are chosen independently from i), ii), iii), or iv), but at least one of R1, R2, or R3 is defined by iii); and/or

a salt, prodrug or complex of the compounds according to (a)-(c)

102. (new) Method according to claim 101, wherein the animal feed further comprises fermented soy protein material.

103. (new) Method according to claim 101, where the animal based product is a meat product.

104. (new) Method according to claim 102, where the animal based product is a meat product.

105. (new) Method according to claim 101, where the animal based product is an oil based product.

106. (new) Method according to claim 102, where the animal based product is an oil based product.

107. (new) Method according to claim 101, where the animal based product is a skin based product.

108. (new) Method according to claim 102, where the animal based product is a skin based product.